TEXAS NATURAL RESOURCE CONSERVATION COMMISSION
MUNICIPAL SOLID WASTE LANDFILL SITE
SOIL AND LINER EVALUATION REPORT

★★★★★ *READ THESE INSTRUCTIONS BEFORE COMPLETING THIS FORM* ★★★★★

THIS FORM IS TO BE COMPLETED BY A QUALIFIED INDEPENDENT THIRD-PARTY PROFESSIONAL ENGINEER EXPERIENCED IN GEOTECHNICAL ENGINEERING AND SOILS TESTING OR A GRADUATE GEOLOGIST WHOSE EDUCATION AND/OR EXPERIENCE IS IN ENGINEERING GEOLOGY AND GEOTECHNICAL SOILS TESTING. THE EVALUATOR MUST HAVE EXPERIENCE WITH THE PROPER METHODS OF CONSTRUCTING SOIL LINERS AND BE ABLE TO INTERPRET THESE GEOTECHNICAL TEST RESULTS TO ENSURE THEY MEET THE REQUIREMENTS OF THE COMMISSION'S RULES.

THE PURPOSE OF THE SOIL EVALUATION REQUIREMENT IS TO ASSURE THAT GROUND WATER, AS DEFINED IN THE COMMISSION'S RULES, IS PROTECTED FROM CONTAMINATION RESULTING FROM THE LAND DISPOSAL OR STORAGE OF MUNICIPAL SOLID WASTE. THIS SOIL EVALUATION IS REQUIRED TO PROVIDE AN OPPORTUNITY FOR A PROFESSIONAL GEOTECHNICALLY-QUALIFIED INDIVIDUAL TO INSPECT THE TRENCH OR AREA AND TO DOCUMENT THAT IN SITU SOILS AND/OR CONSTRUCTED SOIL LINERS MEET THE COMMISSION'S REGULATORY REQUIREMENTS PRIOR TO CONSTRUCTION OF A FLEXIBLE MEMBRANE LINER (GEOMEMBRANE), LEACHATE COLLECTION SYSTEM, OR FILLING OPERATIONS. THIS EVALUATION IS IN ADDITION TO SOILS DATA OBTAINED TO MEET THE PERMIT REQUIREMENTS. FOR THIS REASON, PRIOR GEOTECHNICAL DATA IN ITSELF SHALL NOT BE CONSIDERED A SUBSTITUTE FOR LABORATORY SOILS TESTING NECESSARY TO PROVIDE PROPER DOCUMENTATION AND SUBSEQUENT VERIFICATION OF THE SOIL CONDITIONS OF EACH TRENCH OR DISPOSAL AREA PRIOR TO SOLID WASTE DISPOSAL.

DATA AND INFORMATION REQUIRED IN THIS QUESTIONNAIRE ARE TO PROVIDE THE BASIS OF THE EVALUATION MADE BY THE PROFESSIONAL OF RECORD (POR). THIS REPORT IS TO BE SUPPLEMENTED WITH THOSE QUALITY CONTROL TESTS DETAILED IN THE PERMIT'S SOILS AND LINER QUALITY CONTROL PLAN AND SHALL BE THE BASIS OF DOCUMENTATION OF THE QUALITY CONTROL AND ACCEPTANCE OF AN IN SITU OR CONSTRUCTED LINER.

ATTACH ADDITIONAL SHEETS AS NEEDED, AND ON EACH SHEET IDENTIFY THE APPROPRIATE PART AND PARAGRAPH NUMBER FOR EACH REFERENCE.

★★★

PART A. SITE IDENTIFICATION

Permittee____

Permit No.______________ Operational Classification Type_________

County____

(SUBMIT THIS SLER TO THE COMMISSION IN TRIPLICATE)

PART B. GENERAL INFORMATION

1. What type of liner is required by the Permit and is detailed in the Site Development Plan? _____
_____
_____.

2. Is this the first liner element of a Composite Liner System? _____.

3. Does the Site Development Plan require a Leachate Collection System for this liner system? _____.

4. What is the date of the most recent SLER submittal prior to this submittal? _____.

5. Date of the current Soils and Liner Quality Control Plan used to develop this SLER. _____.

6. When do you estimate the Soils and Liner Evaluation Report for the next trench or area will be submitted?
_____.

PART C. LOCATIONS AND/OR DESCRIPTION OF AREAS CURRENTLY BEING EVALUATED

1. Attach to this report a copy of the latest approved sectorized fill layout plan showing the areas or sectors of the landfill site currently under evaluation and showing areas previously filled. If a copy of the original site plan is not available or is determined to be inaccurate, then prepare and attach an updated site layout that identifies the areas already filled, those currently receiving waste material, and the area or areas now being evaluated. The required grid system must be shown on this drawing.

2. On a sketch or drawing of the area or areas under evaluation, indicate the following:

   a. Location and pertinent identifying information relating to all soil borings, core samples, observation trenches, and in situ soil tests that were collected or conducted to accomplish this evaluation;

   b. Boundary lines distinguishing the bottom and sidewall areas of the trenches or fill areas being evaluated; and

   c. Location and proper designation of constructed or in situ liners.

3. Present evaluation location and area of coverage:

   a. Trench, sector, or area identification or number (give station, grid coordinates, boundary limits of this evaluation)
   _____
   _____
   _____.

   b. Excavation depth_____ft., length at top of excavation_____ft., width at top of excavation _____ft., and ratio of side slopes _____:_____.

   c. Total number of square feet of liner evaluated for the floor, _____$ft.^2$, and for each individual side slope: (1) _____$ft.^2$; (2) _____$ft.^2$; (3) _____$ft.^2$; (4) _____$ft.^2$ (if evaluated area has more than four sides, list all others below). ____
   _____
   _____
   _____.

PART D. <u>SOIL EVALUATIONS CONDUCTED DURING THE CURRENT STUDY</u>

1. Were all the soils tests and the rate of testing performed in accordance with the current Soils and Liner Quality Control Plan? _____.
   If not, please explain. _____
   _____.

2. Dates liner was under construction. _____
   _____
   _____
   _____.

3. Dates the Professional of Record (POR) actually visited the site. _____
   _____
   _____
   _____
   _____.

4. Name & dates the POR's technician was on site. _____
   _____
   _____
   _____
   _____
   _____.

5. Summarize on the next page the test results of <u>in situ soils only,</u> if tested, provided they are allowed as an alternate liner by the permit.

Note: The following soils tests on the sidewalls and bottom shall comply with the test procedures detailed in the Commission's Rules.

IN SITU SIDEWALL AREAS

Test locations must be noted on the sketch required by Part C, Paragraph 2 and are identified as follows: _____

_____

Number Done	Tests Conducted on Sidewalls	Range of Values (where appropriate)
_____	Soil Classification (USC)	_____
_____	Fraction Passing No. 200 Sieve (%)	_____
_____	Moisture Content (%)	_____
_____	Liquid Limit (Minus No. 40 Sieve)	_____
_____	Plasticity Index (Minus No. 40 Sieve)	_____
_____	Dry Density	_____
_____	Coefficient of Permeability (cm/sec.)	_____
_____	Number of Samples Tested Oriented in the Horizontal Direction?	
	Method Used to Determine Permeability	_____
	_____	

IN SITU BOTTOM AREAS

Test locations must be noted on the sketch required by Part C, Paragraph 2 and are identified as follows: _____

_____

Number Done	Tests Conducted on Bottom	Range of Values (where appropriate)
_____	Soil Classification (USC)	_____
_____	Fraction Passing No. 200 Sieve (%)	_____
_____	Moisture Content (%)	_____
_____	Liquid Limit (Minus No. 40 Sieve)	_____
_____	Plasticity Index (Minus No. 40 Sieve)	_____
_____	Dry Density	_____
_____	Coefficient of Permeability (cm/sec.)	_____
	Method Used to Determine Permeability	_____
	_____	

Part E. EVALUATION RESULTS

1. STATUS OF IN SITU SOILS

a. Do the test results of samples taken from the bottom and sidewalls of the disposal area evaluated, or does the presence of joints, fractures or bedding planes, indicate the need for a constructed liner to meet the requirements of the Commission's Rules? (Note: The use of in situ soils as an alternate liner system must be so indicated within the permit to be considered acceptable regardless of the results of the tests.)

_____

.

b. If the answer to a. above is no, give a detailed explanation based on test data and depth documentation that will support this conclusion.

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____.

(Please use additional paper if necessary for full explanation)

2. STATUS OF INSTALLED LINERS

A professional engineer or geologist with geotechnical experience or a member of his or her staff qualified by training and experience shall monitor liner construction, but the final evaluation must be made by the aforementioned engineer or geologist.

a. Does the site have a Soils and Liner Quality Control Plan that follows current recommended liner construction practices? _____. (Suggestions on soil liner construction and testing are available from the Ground-Water Protection Section, Municipal Solid Waste Division.)

b. Was this plan followed? _____.

c. If not followed, why? _____
_____
_____
_____.

d. Was the liner construction completed prior to your final field visit? _____.

e. How much overlap length is incorporated in the "tie-in" of this liner with the previously constructed liner? _____ ft. Was the tie-in done in "stair-step" fashion with maximum step heights of 12 inches? _____. If not, describe tie-in. _____
_____
_____
_____.

f. How were sample holes and nuclear-density gauge pin/probe holes backfilled? _____
_____
_____
_____.

g. Does this liner require any ballast to overcome hydrostatic pressure? _____. If so, how much was placed? _____. (If ballast is placed, submit ground-water elevation data to substantiate the adequacy of its thickness. Note: Ballast thickness must be based on highest seasonal water table elevation).

h. Has the protective cover been constructed, if required? _____.

i. **Attach all field test and laboratory test data concerning soil liner construction. These data must include copies of <u>all laboratory permeability test work sheets,</u> including a sample calculation of the permeability values obtained in accordance with the utilized method(s) (please show all calculations), and documentation of the thickness of the liner, protective cover where required, leachate collection system, and ballast.**

3. EVALUATION OF LINER BOUNDARY MARKERS

Are boundary markers in place at the time of this SLER submittal? _____.
(See Chapter 330.55(b)(10)(A)(v)&(B)(v) Municipal Solid Waste Division Rules)

PART F. SIGNATURE OF THE PROFESSIONAL OF RECORD

AFFIX SEAL BELOW IF A PROFESSIONAL ENGINEER

(SIGNATURE)

(TYPED OR PRINTED NAME)

(TITLE)

(COMPANY OR BUSINESS NAME)

(DATE SIGNED)

(ADDRESS, CITY, ZIP CODE)

PHONE NUMBER_____

FAX NUMBER_____

Note: A professional engineer must be registered in Texas.

IMPORTANT: THREE SIGNED, SEALED, AND DATED COPIES OF THIS FORM, WHICH INCLUDES ONE ORIGINAL COPY, PLUS ALL ATTACHMENTS (DRAWINGS, COMMENTS, ETC.) FOR EACH COPY MUST BE PROVIDED TO THE COMMISSION.

Part G. SIGNATURE OF PERMITTEE

By signing this document you are agreeing to the following regulatory requirements and policies.

1. I have read and fully understand the findings of this SLER submittal;

2. Any trench or area not covered by this SLER document or any previously accepted SLER document will not be used for the receipt of solid waste; and

3. The trench or area covered by this SLER document will not be used for the receipt of solid waste until written acceptance of this SLER document is received or 14 days have elapsed **from the date of receipt of this SLER by the Commission** and you or your designated representative have notified us by telephone of your intent of usage. In this manner you will be able to determine the date of arrival of the SLER in question.

4. If the trench or area covered by this SLER document is the constructed soils portion of a composite liner, then acceptance of this SLER document does not grant its usage for the receipt of solid waste without acceptance of the Flexible Membrane Liner portion of the composite liner system and, where required, the acceptance of the leachate collection system "as-built" documentation.

If the landfill operator places waste after 14 days without formal authorization or has not notified the Commission of this intent and the SLER is found to be unacceptable for any reason, the operator will then be required to remove such waste and place it in an approved area until the liner is found to be acceptable by the Commission.

Note: If you include your fax number along with your telephone number we will notify you or your designated representative as soon as SLER acceptance has been determined. Verbal and/or faxed notification will be followed by written acceptance.

_____ (SIGNATURE)

_____ (TYPED OR PRINTED NAME)

_____ (TITLE)

_____ (DATE SIGNED)

_____ (BUSINESS NAME)

_____

_____ (ADDRESS, CITY, ZIP CODE)

PHONE NUMBER_____

FAX NUMBER_____

(PHONE NUMBER AND FAX NUMBER IF YOU WISH PRELIMINARY NOTIFICATION IN THIS FASHION)

IMPORTANT: THREE SIGNED AND DATED COPIES OF THIS FORM, WHICH INCLUDES ONE ORIGINAL COPY, PLUS ALL ATTACHMENTS (DRAWINGS, COMMENTS, ETC.) FOR EACH COPY MUST BE PROVIDED TO THE COMMISSION.